

053168-5003-02

Remarks

Reconsideration of rejected claims 1-4, 45-48 and 52-56 is respectfully requested.

In the Office action dated October 19, 2004 (application Paper No. 1004), the Examiner rejected cited claims 1-4, 45-48 and 52-56 under 35 USC § 103(a) as being unpatentable over US Patent 3,699,407 (Gurtler et al.). Remaining claims 5-7, 9-28, 32, 33, 37-44, 49-51, 57 and 58 have been found "allowable" by the Examiner. As will be mentioned below, applicants believe that independent claim 1 is allowable. Thus, applicants request that the non-elected species including claims 8, 29-31 and 34-36 now also be considered as allowable by the Examiner and re-included in this pending application.

35 USC § 103(a) Rejection – Claims 1-4, 45-48 and 52-56

The Examiner rejected the above-cited claims under 35 USC 103(a) as being unpatentable over US Patent 3,699,407 (Gurtler et al.). With respect to independent claims 1, 53 and 56, the Examiner cited Gurtler et al. as disclosing a method/apparatus including "a light coupling assembly comprising a device portion including an optical device arranged in a first fixed pattern (a Schottky barrier detector in column 2, line 65); a light coupling portion including an anisotropically etched coupling element (12) arranged in a second fixed pattern so as to correspond with a respective optical device (as shown in figure 1), wherein the light coupling portion is disposed in an aligned arrangement with the device portion (see figure 1)". The Examiner went on to conclude that "Gurtler et al. do not disclose a plurality of optical devices and a plurality of anisotropically etched coupling elements. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to reproduce the optical devices and the anisotropically etched coupling elements".

In response, applicants assert that Gurtler et al. cannot be found to render obvious the subject matter of claims 1-4, 45-48 and 52-56 for at least two reasons. First, Gurtler et al. is directed to the formation of an entirely active optical device, including an LED

053168-5003-02

transmitter and a Schottky barrier receiver. Silicon layer 20 in Gurtler et al. (which is anisotropically etched to form sloping sidewalls) forms part of the Schottky barrier *active* photodetecting device. As clearly illustrated in FIG. 3 of Gurtler et al., the isotropic emission from LED 12 will impinge etched sidewalls 30, 32 of main body 20 of the Schottky device and direct the generated electron-hole pairs toward metal layer 17 of the Schottky device (increasing its efficiency). Secondly, applicants assert that Gurtler et al. utilizes the etched sidewalls of silicon layer 20 for a different purpose: to capture off-axis light emission from LED source 12 and thus generate additional electron-hole pairs and improve the efficiency of the Schottky barrier detector.

In contrast, the subject matter of the present invention is directed to the formation of a silicon-based *passive* "light coupling portion" including anisotropically etched features that function to evanescently couple a (free-space) optical signal (generally from a laser-based source) into a plurality of SOI-based optical devices ("the light coupling portion is disposed in an aligned arrangement with the device portion to couple light into each optical device", claim 1). That is, the light coupling portion of the present invention is advantageously a silicon substrate that may be anisotropically etched to create the facet angles required to couple a free space optical signal into an optical device formed within "a silicon surface layer of a silicon-on-insulator (SOI) structure", as defined by amended claim 1. Additionally, there is no teaching in Gurtler et al. of utilizing a separate wafer portion as the "light coupling portion" which is wafer-to-wafer bonded to the SOI-based device portion. Gurtler et al., it is asserted, is limited to teaching a modification of an *active* device structure (the Schottky diode) to improve its conversion efficiency. Moreover, the arrangement of Gurtler et al. cannot be found to render obvious any arrangement for coupling into a "silicon surface layer" of an SOI structure.

For these reasons, applicants believe that claims 1-4, 45-48 and 52-56 are allowable (as amended) over the cited Gurtler et al. reference. Applicants therefore respectfully request the Examiner to reconsider this rejection and find the claims to be in condition for allowance. With the allowance of independent claim 1, applicants request the Examiner to re-introduce non-elected claims 8, 29-31 and 34-36 into this application and also find them to be in condition for allowance.

053168-5003-02

Allowable Subject Matter

As noted above, the Examiner has already determined that claims 5-7, 9-28, 32, 33, 37-44, 49-51, 57 and 58 contain "allowable" subject matter. With this note, applicants believe that the entire case is now in condition for allowance and respectfully request an early and favorable response from the Examiner in that regard. If for some reason or other the Examiner does not agree that the case is ready to issue, and that an interview or telephone conversation would further the prosecution, the Examiner is invited to contact applicants' attorney at the telephone number listed below.

Respectfully submitted,

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